

Blue

Work Order ID 53410

November 4, 2009 7:36:35 AM



Page 1

Item ID: D206-667-103TRN

Accept



Setup Start



Revision ID: C

Stop



Item Name: Crosstube Turning DetailL

Start Date: 11/04/09 Start Qty: 1.00



Cust Item ID:

Required Date: 11/06/09 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: *BT*

Date: *09-11-4*

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

Draw Nbr

Revision Nbr

D206-667-143

Rev C

100

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA087 2-Turn first side as per Folio FA087 3-File down transition lines smooth.

a.m 09-11-100

110

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

a.m 09-11-110

120

0.00



MORI SEIKI CNC LATHE LARGE

Mori Seiki

Memo

0.00

Mori Seiki CNC Lathe Large

1-Turn second side as per Folio FA087 2-File down transition lines smooth.
3-Remove sand and plugs

a.m 09-11-120

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 53410

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Page 2

Item ID: D206-667-103TRN

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Setup Start

Stop

Start Date: 11/04/09 Start Qty: 1.00

Required Date: 11/06/09 Req'd Qty: 1.00

Cust Item ID:

Customer:

Reference:

Run Start

Stop

Approvals:

Process Plan:

Date:

Tooling:

Date:

QC:

Date:

SPC (Y/N):

Date:

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

130

QC1- Inspect dimensions to dimension sheet

0.00



QC

Memo

0.00

Quality Control

CA 02-10-1000

140

QC8- Inspect parts - second check

0.00



QC

Memo

0.00

Quality Control

1 - AM 9-11-12

150

Crosstubes Chemical Conversion

0.00



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

1 - AM 9-11-12

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 53410

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Page 3

Item ID: D206-667-103TRN

Accept

Revision ID: C

Item Name: Crosstube Turning DetailL

Start Date: 11/04/09 Start Qty: 1.00

Required Date: 11/06/09 Req'd Qty: 1.00

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start

QC:

Date:

SPC (Y/N):

Date:

Stop

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Draw
Number

Draw
Rev.

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

160

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

1 # 9/11/13

170

Packaging

0.00



Packaging

Memo

0.00

Packaging

Identify and stock in kanban rack Location: Y-TUBE CELL

1 - AUG 9-11-12

180

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

09/11/13
JMF 09-11-13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

November 4, 2009 7:36:34 AM

Page 1

Work Order ID: 53410

Parent Item: D206-667-103TRNRevC

Parent Item Name: Crosstube Turning DetailL

Start Date: 11/04/09

Required Date: 11/06/09

Comments:

Start Qty: 1.00

Required Qty: 1.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
D6002-115RevA		Manufactured	No			110	Each	64.0000	1.0000			



Crosstube Material



<u>Warehouse</u>	<u>Loc Qty</u>	<u>Loc Code</u>
<u>Location</u>		
Main Warehouse		
LG	64	
34684	4	
34776	60	

AYM 9-11-10 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	53410
Description: Crosstube Assembly (206L High Fwd)	Part Number:	D206-667-143
Inspection Dwg: D206-667-143 Rev: B		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article
 ☐ Prototype

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+0.005/-0.000	2.241	/			
	1.982	+0.005/-0.000	1.987	/			
	2.019	+0.005/-0.000	2.023	/			
	2.058	+0.005/-0.000	2.063	/			
	2.097	+0.005/-0.000	2.103	/			
	2.136	+0.005/-0.000	2.138	/			
	2.176	+0.005/-0.000	2.184	/			
	2.201	+0.005/-0.000	2.205	/			
	0.125	+/-0.010	0.125	/			
	0.400 x 30°	+/-0.010	0.400/30°	/			
	R0.063	+/-0.010	R0.063	/			
	R0.500	+/-0.010	R0.500	/			
	4.438	+/-0.030	4.443	/			
SIDE B	104.98	+/-0.020	105.000	/			
	2.240	+0.005/-0.000	2.240	/			
	1.982	+0.005/-0.000	1.987	/			
	2.019	+0.005/-0.000	2.023	/			
	2.058	+0.005/-0.000	2.063	/			
	2.097	+0.005/-0.000	2.103	/			
	2.136	+0.005/-0.000	2.138	/			
	2.176	+0.005/-0.000	2.183	/			
	2.201	+0.005/-0.000	2.204	/			
	0.125	+/-0.010	0.125	/			
	0.400 x 30°	+/-0.010	0.400/30°	/			
	R0.063	+/-0.010	R0.063	/			
	R0.500	+/-0.010	R0.500	/			
	4.438	+/-0.030	4.443	/			

Measured by:	G.M	Audited by:	ALM	Prototype Approval:	N/A
Date:	09.10.10	Date:	9-11-12	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	04.05.06	New Issue (P/O D206-667-103)	KJ/RF	
B	06.03.09	Dwg Rev updated	KJ/JLM	

Item	Qty -143	Part Number	Description
1	X	D206-667-143	CROSSTUBE ASSEMBLY (206L HIGH FWD)
2	1	D6002-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2891-1	SUPPORT
6	4	D3595-063-395	RUBBER CUSHION
7	4	MS21920-20	CLAMP (OR MS21920-21)
8	14	MS20601AD4W8	RIVET (OR NAS9302B-4-8)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6002-115
FINISHED LENGTH = 104.98±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-143" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 15.5 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY, TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 10 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2891-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-20 CLAMPS (OR -21) WITH D3595-063-395 RUBBER CUSHIONS TO SECURE THE D2891-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-395 WAS D2856-400-694 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCE (ZN D3-3, C4-3, C5-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	90	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF	DRAWING NO.	REV. C
CHECKED	4	D206-667-143	SHEET 1 OF 4
MFG. APPR.	4	TITLE	SCALE
APPROVED	4	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
DE APPR.	4	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	
DATE	08.11.06		

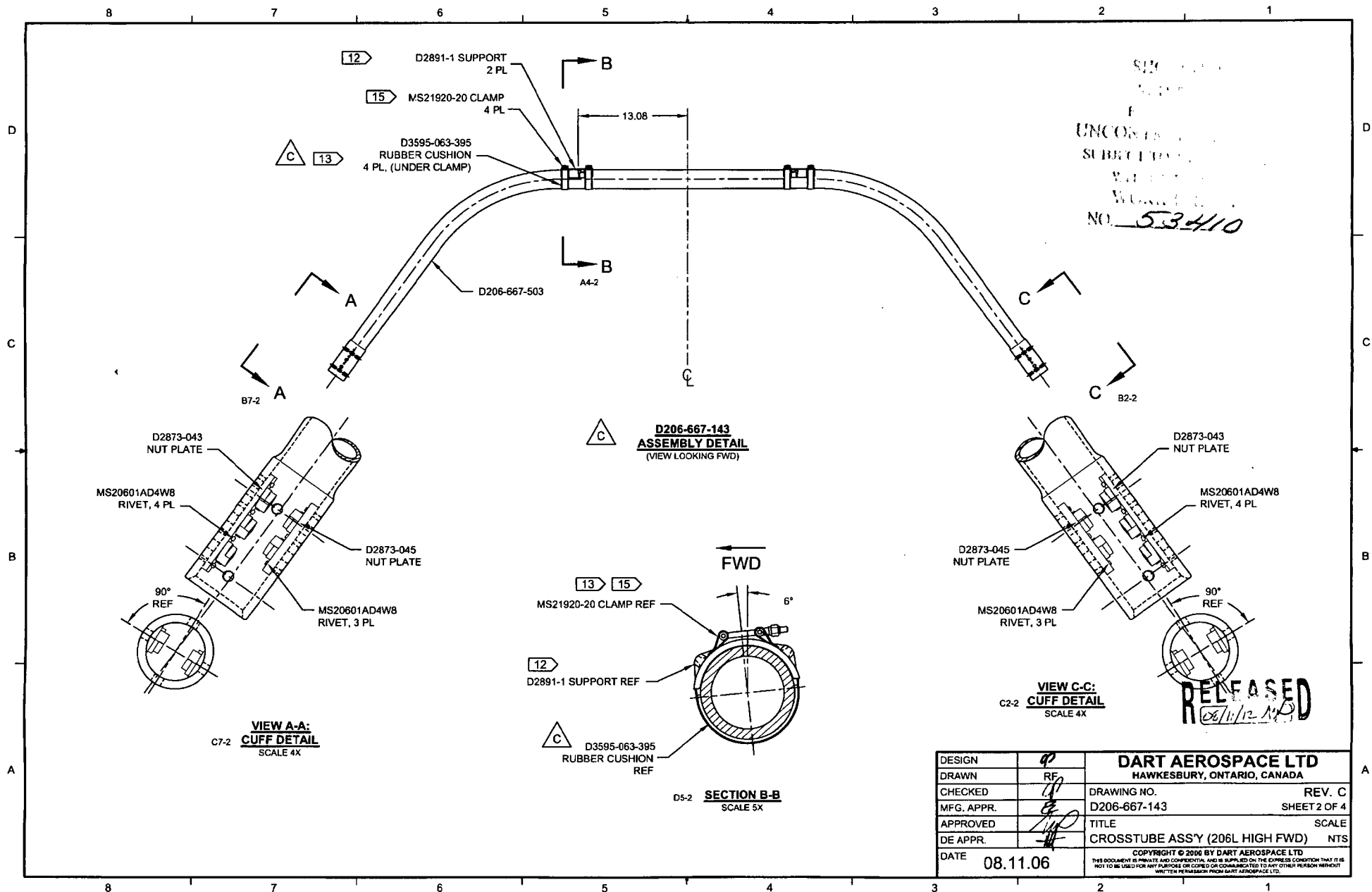
RELEASED

105.23

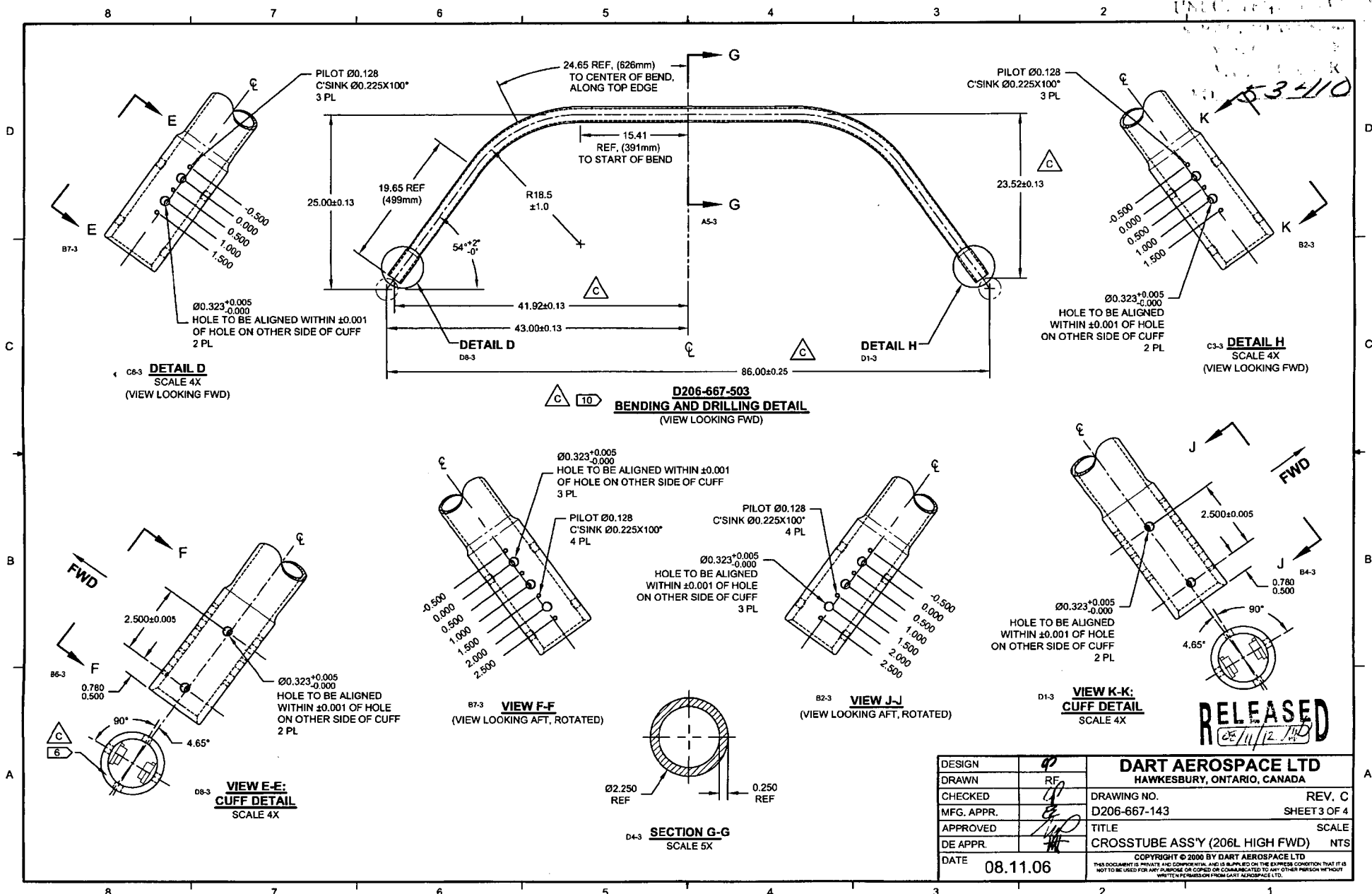
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NO. 53410

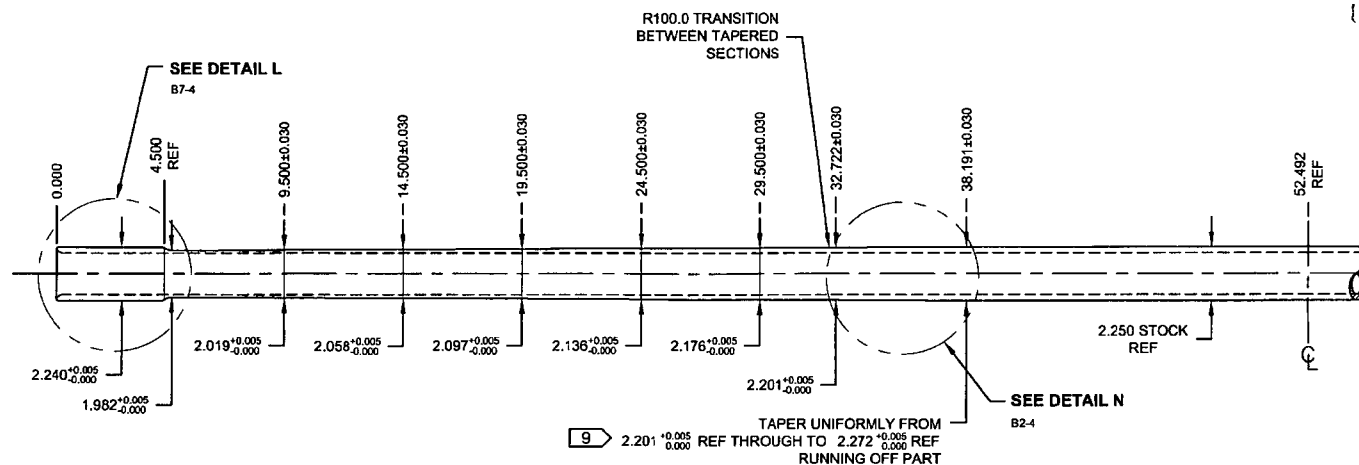
09-11-4



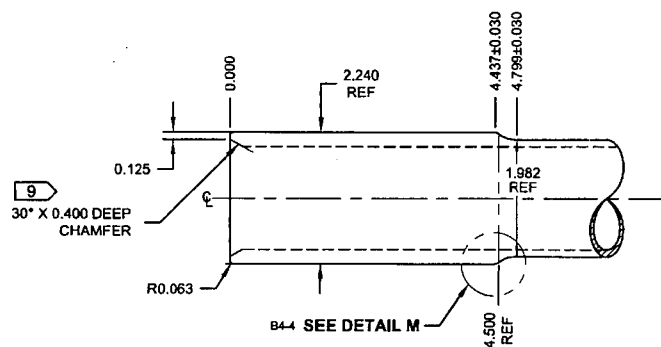
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 UNCLASSIFIED



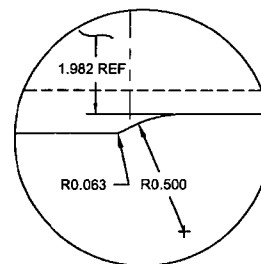
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DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	42	DRAWING NO.	REV. C
MFG. APPR.	42	D206-667-143	SHEET 3 OF 4
APPROVED	42	TITLE	SCALE
DE APPR.	42	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
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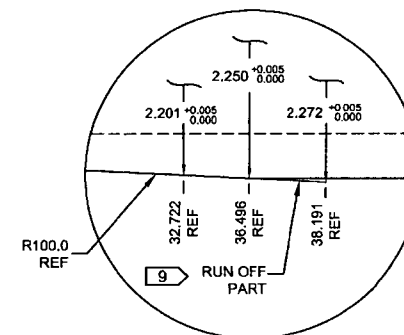
TURNING DETAIL



**DETAIL L:
CROSSTUBE CUFF**
D7-4 NOT TO SCALE



**DETAIL M:
CUFF TRANSITION**
A6-4 NOT TO SCALE



**DETAIL N:
TAPER RUN-OFF**
C4-4 NOT TO SCALE

RELEASED

DESIGN	47	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	47	DRAWING NO.	REV. C
MFG. APPR.	47	D206-667-143	SHEET 4 OF 4
APPROVED	47	TITLE	SCALE
DE APPR.	47	CROSSTUBE ASS'Y (206L HIGH FWD)	NTS
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